



# Ship Construction in Asian Emerging Markets

Terence Song and Simon Groves

Inserve Marine Technical Services Ltd

# Ship Construction in Asia Emerging Markets

## Countries considered

- China
- Vietnam
- Philippines
- Taiwan
- India
- Malaysia
- Thailand
- Bangladesh
- Indonesia

# Three main emerging nations

## Current market share

- Philippines – 120 ships on order, 1.2% of world tonnage.
- Vietnam – 200 ships on order, 1.5% of world tonnage.
- China – 2,500 ships on order, 25% of world tonnage.

# Philippines

Problems when moving to ship construction from ship repair



## The big three

How does China compare?

- Korea – 2,000 ships on order, 36% of world tonnage.
- China – 2,500 ships on order, 25% of world tonnage.
- Japan – 1,500 ships on order, 20% of world tonnage.
- World tonnage on order – 400 million DWT.



# Mayflower Resolution

## Hull No. 003



# Mayflower Resolution

## Hull No. 003



# Chinese Shipyards

## Interactive Map





# Waigaoqiao Shipyard

CSSC, 1999 - 2008



# Waigaoqiao Shipyard

## CSSC, 1999 - 2008



# Hudong Zhonghua Shipyard CSSC





# Hudong Zhonghua Shipyard

## 147,000m<sup>3</sup> LNG – first batch of five vessels



# Jiangnan Shipyard

CSSC, 1865 - 2008







# NACKS – 10,000 teu containership

Eight ships of 13,350 teu on order



# COSCO Shipyards

## China Shipping Shipyards



# Nantong COSCO Shipyard

## Sevan 650 drilling unit and FSO, US\$700 million



# Beach Yards

## Independent yards





# Beach Yards



# Beach Yards





# Beach Yards



# Beach Yards

## Cementing of bottom plating inside ballast tanks



# State investigation

## Findings by early 2006:

186 shipyards were closed

218 had completed the improvements necessary

572 were in the process of completing the improvements.



## State Quality Policy

- The new version of "China Shipbuilding Quality Standard" was published December 2005 and in force in 1/2006. Used as a bench mark for auditing, inspection.
- The law for “Shipbuilder Qualification Licence” is under development by the government and will be issued and in force soon.

# Beach Yards

## Some quality concerns

- Sub standard materials
- Recycled materials
- Second-hand machinery and equipment
- Minimum amount / number of machinery
- No permanent workshop facilities
- Insufficient craneage
- Inadequate supervision
- Poor quality welding

# Beach Yards

## Some quality concerns

- Temptation to speed up the welding process
- Insufficient quality control / NDT of welds
- Unsafe working practices
- Lack of management supervision
- Fatigue
- No technical support

# New Shipbuilding Base, South China



# Insurance considerations

## Typical findings from JH143 surveys

- Fire risks - bamboo scaffolding, broken gas hoses, smoking.
- Falling risks – defective slings, no crane maintenance, improperly fitted lifting eyes.
- Design defects – inexperienced designers, building to rules and regulations and not considering future maintenance requirements.
- Quality control – insufficient supervision.
- Physical defects – everything being done in a hurry.



# Where things have gone wrong.

## Some examples.

- Utilising a design for a parcel tanker to build a chemical tanker.
- Confusing metric and imperial units.
- Dealing with large temperature variations when applying coatings.
- Building in a hurry and not keeping to a production schedule.
- Winning contracts to build before the yard has been built.

## Classification Societies

Can they be effective in dealing with these issues?

- Yards prefer CCS for ease of communication and cost, but all IACS members represented.
- Tend to concentrate on the ship and not the yard.
- Difficulties finding sufficient surveyors to meet demand.
- Lesser experienced surveyors inevitably used – checklist surveyors.
- Doubts remain over cost cutting, levels of equipment etc.
- Beach Yards building to ZC standards.

# Hull insurers

## Points to consider

- Newbuild or yard hull number – low numbers indicative of low levels of experience
- Smaller vessels – less experienced yards generally start with smaller vessels of relatively simple design.
- Vessels which have changed Class during or shortly after construction.
- Vessels which have changed ownership during or shortly after construction.